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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/000,439	10/24/2001	Andrew Saxon	UC067.004A	9201

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EXAMINER	
HUYNH, PHUONG N	

ART UNIT	PAPER NUMBER
1644	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/000,439	SAXON, ANDREW	
	Examiner	Art Unit	
	PHUONG HUYNH	1644	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *three* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *03 January 2008*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *17,21-24,26-34,40-44 and 60-68* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *17,21-24,26-34,40-44 and 60-68* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. Claims 17, 21-24, 26-34, 40-44 and 60-68 are pending and are being acted upon in this Office Action.

2. In view of the amendment filed 1/3/08, all previous rejections have been obviated.

3. New grounds of rejections are set forth below.

4. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

5. Claims 17, 21-24, 26-34, 40-44 and 60-68 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor, at the time the application was filed, had possession of the claimed invention. **This is New Matter**.

The recitation of "An isolated fusion molecule .....a second polypeptide autoantigen sequence comprising *at least 90% sequence identity to a portion of the amino acid sequence of myelin basic protein (MBP) and capable of specific binding to an IgE class immunoglobulin specific for MBP*" in claims 17 and 21 represents a depart from the claims and the specification as originally filed.

Neither the specification nor the claims as originally filed discloses any "second polypeptide autoantigen sequence comprising at least 90% sequence identity to any portion of the amino acid sequence of myelin basic protein (MBP), let alone capable of binding to IgE class immunoglobulin specific for MBP" for the claimed fusion protein as now claimed.

The specification discloses an isolated fusion molecule comprising a human IgG heavy chain constant region sequence capable of binding to a human IgG inhibitory receptor directly functionally connected to autoantigen myelin basic protein (MBP) or an epitope of MBP consisting of the amino acid sequence of SEQ ID NO: 13 wherein said human IgG heavy chain constant region sequence is the sequence of SEQ ID NO: 2 or SEQ ID NO: 3.

The specification does not disclose any autoantigen sequence comprising at least 90% sequence identity to the full-length sequence of myelin basic protein, much less at least 90% sequence identity to any fragment (portion) of myelin basic protein (MBP) and still capable of binding to IgE class of immunoglobulin specific for MBP for the claimed fusion molecule.

6. Claims 17, 21-24, 26-34, 40-44 and 60-68 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling only for (1) an isolated fusion molecule comprising a human IgG heavy chain constant region capable of binding to a native human IgG inhibitory receptor wherein said IgG heavy chain constant region consisting of the amino acid sequence of SEQ ID NO: 2, directly functionally connected to a myelin basic protein comprising the amino acid sequence of SEQ ID NO: 2 or an epitope of myelin basic protein wherein the epitope consisting of the amino acid sequence of SEQ ID NO: 13, (2) an isolated fusion molecule comprising a human IgG heavy chain constant region capable of binding to a native human IgG inhibitory receptor wherein said IgG heavy chain constant region consisting of the amino acid sequence of SEQ ID NO: 3, directly functionally connected to a myelin basic protein comprising the amino acid sequence of SEQ ID NO: 2 or an epitope of myelin basic protein wherein the epitope consisting of the amino acid sequence of SEQ ID NO: 13, **does not** reasonably provide enablement for any fusion molecule as set forth in claims 17, 21-24, 26-34, 40-44 and 60-68 for treating autoimmune disease such as multiple sclerosis. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the invention commensurate in **scope** with these claims.

Factors to be considered in determining whether undue experimentation is required to practice the claimed invention are summarized *In re Wands* (858 F2d 731, 737, 8 USPQ2d 1400, 1404 (Fed. Cir. 1988)). The factors most relevant to this rejection are the scope of the claim, the amount of direction or guidance provided, the lack of sufficient working examples, the unpredictability in the art and the amount of experimentation required to enable one of skill in the art to practice the claimed invention. The specification disclosure is insufficient to enable one skilled in the art to practice the invention as broadly claimed without an undue amount of experimentation.

Claim 17 encompasses an isolated fusion molecule comprising a first polypeptide-sequence comprising a native human IgG heavy chain constant region capable of specific binding to a native IqG inhibitory receptor, wherein said IgG heavy chain constant region sequence is the

sequence of SEQ ID NO: 2, directly functionally connected to a second polypeptide autoantigen sequence comprising at least 90% sequence identity to a portion of the amino acid sequence of myelin basic protein (MBP) and capable of specific binding to an IgE class immunoglobulin specific for MBP.

Claim 21 encompasses an isolated fusion molecule comprising a first polypeptide sequence comprising a native human IgG heavy chain constant region capable of specific binding to a native IgG inhibitory receptor, wherein said first polypeptide sequence comprises an amino acid sequence having at least 98% identity to the amino acid sequence of SEQ ID NO: 3, directly functionally connected to a second polypeptide autoantigen sequence comprising at least 90% sequence identity to a portion of the amino acid sequence of myelin basic protein (MBP) and capable of specific binding to an IgE class immunoglobulin specific for MBP.

Claim 40 encompasses a pharmaceutical composition comprising the fusion molecule comprising a first polypeptide-sequence comprising a native human IqG heavy chain constant region capable of specific binding to a native IgG inhibitory receptor, wherein said IgG heavy chain constant region sequence is the sequence of SEQ ID NO: 2, directly functionally connected to a second polypeptide autoantigen sequence comprising at least 90% sequence identity to a portion of the amino acid sequence of myelin basic protein (MBP) and capable of specific binding to an IgE class immunoglobulin specific for MBP for treating multiple sclerosis.

Claim 41 encompasses a pharmaceutical composition comprising the isolated fusion molecule comprising a first polypeptide sequence comprising a native human IqG heavy chain constant region capable of specific binding to a native IgG inhibitory receptor, wherein said first polypeptide sequence comprises an amino acid sequence having at least 98% identity to the amino acid sequence of SEQ ID NO: 3, directly functionally connected to a second polypeptide autoantigen sequence comprising at least 90% sequence identity to a portion of the amino acid sequence of myelin basic protein (MBP) and capable of specific binding to an IgE class immunoglobulin specific for MBP for treating multiple sclerosis.

Enablement is not commensurate in scope with how to make and use such fusion proteins mentioned above for treating multiple sclerosis.

The term “portion” as defined in the specification at page 29 is any portion of a polypeptide may range in size from two amino acid residues to the entire amino acid sequence minus one amino acid. The term “at least a portion” encompasses portions as well as the whole of the composition of matter.

The specification discloses only an isolated fusion molecule comprising a first polypeptide consisting of the amino acid sequence of a hinge-CH2-CH3 of human IgG1 constant region of SEQ ID NO: 2, or the amino acid sequence of SEQ ID NO: 3 fused to a myelin basic protein T epitope consisting the amino acid sequence of SEQ ID NO: 13, see page, 80, Example 2. The specification further discloses another fusion molecule comprising human IgG Fc fused to human IgE Fc that binds to their respective IgG or IgE receptors such as high-affinity FcεRI and low-affinity FcεRII for treating allergy, see pages 52-55 and 78.

The specification does not teach how to identify other portion of the amino acid sequence of myelin basic protein capable of binding IgE class immunoglobulin specific for MBP. The specification does not teach which amino acids with the portion to be substitute, deleted or added such that the portion having at least 10% amino acids difference and still binds to any IgE class of immunoglobulin specific for MBP for the claimed fusion molecule. There is a lack of specific guidance as to the structure, i.e., amino sequence as to the "portion" of the amino acid sequence of any myelin basic protein (MBP) the binds to IgE class of immunoglobulin has not been disclosed. Because the IgE epitope of MBP (portion of MBP) to which the IgE antibody binds has not been disclosed, the specification as filed does not enable one of skilled in the art as how to make such autoantigen MBP sequence comprising at least 90% identity to such portion, and then fused such portion of MBP to a first polypeptide consisting of the amino acid sequence of SEQ ID NO: 2 or an amino acid sequence having at least 98% sequence identity to the amino acid sequence of SEQ ID NO: 3.

With respect to myelin basic protein binding to IgE class of immunoglobulin, Barsoum et al (Med Microbiol Immunol 163: 227-232, 1977; PTO 892) teach circulating IgE (autoantibody to myelin basic protein) is not found in patient with multiple sclerosis. This is consistent with those of other, who used more sensitive methods (see page 230, in particular). As such, it is unclear to one of ordinary skill in the art such fusion molecule could treat multiple sclerosis by crosslinking the native IgG inhibitory receptor and IgE class receptors such as FcεRI and FcεRII without additional guidance and working examples.

With respect to fusion molecule in claim 21, in addition to having the problem of 90% sequence identity to a portion of the amino acid sequence of myelin basic protein mentioned above, any first polypeptide sequence comprises *an* amino acid sequence having at least 98% identity to the amino acid sequence of SEQ ID NO: 3 fused to said human IgG heavy chain are not enabled. The term "*an* amino acid sequence" could be the full-length sequence of SEQ ID

NO: 3 or any portion of SEQ ID NO: 3. There is a lack of guidance about which amino acids within the sequence of SEQ ID NO: 3 of the first polypeptide in the claimed fusion protein should or should not be change.

Skolnick *et al*, of record; PTO 1449, teach that squence-based methods for function prediction are inadequate and knowing a protein's structure does not necessary tell one it's function (See entire document, Abstract in particular).

With respect to a native human IgG heavy chain constant region comprises an amino acid sequence having at least 98% identiy to the amino acid sequence of SEQ ID NO: 3 in the claimed fusion molecule, there is no guidance as to which amino acid within SEQ ID NO: 3 to be substitute, deleted or added such that it maintains binding to native IgG inhibitory receptor.

Tao et al, of record, teach even a single amino acid substitution in the CH2 domain of human IgGs from Asn-297 to His for IgG1 or Lys for IgG3 affected the structure and functional properties of the human IgGs. The resulting aglycosylated IgGs lose the ability to activate complement (C) (see page 2598, Fig 2, page 2599, col. 2, third paragraph, in particular), lost the ability to bind FcγRI (see page 2600, col. 1, first paragraph, in particular) and shortening the serum half-life of the aglycosylated IgG3 (see abstract, in particular).

Further, there are no *in vivo* working examples of treating multiple sclerosis using such fusion protein. A pharmaceutical composition in the absence of in vivo working examples are unpredictable for the following reasons: (1) the protein may be inactivated before producing an effect, i.e. such as proteolytic degradation, immunological inactivation or due to an inherently short half-life of the protein; (2) the protein may not reach the target area because, i.e. the protein may not be able to cross the mucosa or the protein may be adsorbed by fluids, cells and tissues where the protein has no effect; and (3) other functional properties, known or unknown, may make the protein unsuitable for in vivo therapeutic use, i.e. such as adverse side effects prohibitive to the use of such treatment. See page 1338, footnote 7 of Ex parte Aggarwal, 23 USPQ2d 1334 (PTO Bd. Pat App. & Inter. 1992).

The specification exemplify fusion molecule comprising human IgG Fc fused to myelin basic protein or the specific epitope of myelin basic protein consisting of the amino acid sequence of SEQ ID NO: 13, see example 2. However, the specification does not teach how to use such fusion molecule for treating autoimmune disease such as multiple sclerosis. Lack of a working example, however, is a factor to be considered, especially in a case involving an unpredictable art.

Warren et al (of record, abstract) teach administering myelin basic protein fragment such as MBP35-58 to multiple sclerosis patient had no effect on the anti-MBP level. However, only administering MBP 75-95 resulted in a significant in the autoantibodies over a period of one month (see abstract, in particular).

Vanderlugt et al (of record, J immunology 164: 670-678, 2000; PTO 892) teach the mechanism(s) underlying the initiation and progression of autoimmune disease are not well understood. A number of recent studies in both animal models of autoimmune disease and their human counterparts have shown that administering autoantigen causes epitope spreading, i.e., the de novo activation of autoreactive T cells by autoepitopes released secondary to inflammatory tissue damage (see page 670, col. 1, in particular). Vanderlugt et al teach clinical relapses are associated with the development of T cell response to newly emerging epitopes on the same PLP (i.e., intramolecular epitope spreading to distinct epitope) and/or different myelin epitopes (i.e., intermolecular epitope spreading to MBP epitopes), se page 676, col. 2, in particular. The process of epitope spreading has obvious important implications for the design of antigen-specific therapies for the treatment of autoimmune disease such as multiple sclerosis since these therapies will have to identify and target endogenous self epitopes associated with chronic tissue destruction. Peptide specific therapy will have to be individualized for every patient due to the myriad of potential organ-specific autoepitopes and extensive MHC diversity (see page 677, col. 2, in particular). Vanderlugt et al conclude that because determining the specificity and hierarchical order of autoantigen epitope spreading in human disease such as multiple sclerosis is not currently feasible, antigen-specific therapies for ongoing treatment autoimmune disease may require additional treatment such as induction of tolerance using whole tissue extracts, mixtures of encephalitogenic proteins/peptides or costimulatory blockade (see page 677, col. 2, in particular).

Blanas et al (of record, Science 274: 1707-1709, Dec 1996; PTO 1449) teach treating autoimmune rheumatoid arthritis and multiple sclerosis by oral administering autoantigen could lead to onset of autoimmune diabetes (see abstract, in particular).

Couzin et al, of record, teach that finding the tell tale antibodies doesn't guarantee that autoimmune diabetes sill strike (See page 1863, Science 300: 1862-65, 2003). Couzin *et al* teach that three major prevention trials have failed to stop autoimmune disorder such as type I diabetes (See entire document).

Davidson et al, of record, PTO 1449, teach that two recent phase I clinical trial for treatment of multiple sclerosis by administering myelin basic protein peptide resulted in exacerbations of multiple sclerosis (See page 346, col. 2, in particular). In the absence of specific guidance and *in vivo* working example, it is unpredictable any pharmaceutical composition comprising a myriad of fusion molecule is efficacious for treating multiple sclerosis, let alone for "prevention" of any immune disease (claim 44) such as relapsing multiple sclerosis.

For these reasons, it would require undue experimentation of one skilled in the art to practice the claimed invention. See page 1338, footnote 7 of Ex parte Aggarwal, 23 USPQ2d 1334 (PTO Bd. Pat App. & Inter. 1992).

In re wands, 858 F.2d at 737, 8 USPQ2d at 1404 (Fed. Cir. 1988), the decision of the court indicates that the more unpredictable the area is, the more specific enablement is necessary. In view of the quantity of experimentation necessary, the limited working examples, the unpredictability of the art, the lack of sufficient guidance in the specification and the breadth of the claims, it would take an undue amount of experimentation for one skilled in the art to practice the claimed invention.

Applicants' arguments filed 1/3/08 have been fully considered but are not found persuasive.

Applicant's position is that pending claims 17 and 21 are directed to isolated fusion molecules comprising a human IgG heavy chain constant region consisting of either the amino acid sequence SEQ ID NO: 2 or the amino acid sequence of SEQ ID NO: 3, and are capable of binding to a native IgG inhibitory receptor directly fused to a myelin basic protein or an epitope of myelin basic protein. In addition, the specification including the amino acid sequence of SEQ ID NO: 13, Applicants submit that those of ordinary skill in the art are capable of preparing amino acid sequences having at least 90% sequence identity to the amino acid sequence of SEQ ID NO: 13 without undue experimentation. The practice of the claims dependent from claims 17 and 21 are similarly within the capability those of ordinary skill in the art without undue experimentation.

For example, as discussed in previous amendments, the specification provides sufficient guidance to make a variety of advantageous fusion molecules comprising first and second polypeptide sequences. Applicant submits that fusion molecules comprising first and second polypeptides are fully enabled in view of 1) guidance provided throughout the Specification (in the Example and in other portions of the specification), 2) the routine nature of recombinant DNA

engineering and the production of chimeric or variant polypeptides, as known in the art, and 3) the high level of technical competence of one of ordinary skill in the immunological, genetics and protein-chemistry arts. The routine nature of manipulation of DNA and protein molecules is well known, as evidenced by the publications cited in the Specification *(see,* especially, page 20, line 29 to page 21, line 24; page 64, lines 17 - 26). Detailed protocols for the construction of the fusion molecule variants described in the Specification is not necessary for one of ordinary skill to practice the claimed invention without undue experimentation. For the reasons set forth above, withdrawal of this portion of the rejection is requested.

Contrary to applicants' assertion that claims 17 and 21 are directed to isolated fusion molecules comprising a human IgG heavy chain constant region consisting of either the amino acid sequence SEQ ID NO: 2 or the amino acid sequence of SEQ ID NO: 3, and are capable of binding to a native IgG inhibitory receptor directly fused to a myelin basic protein or an epitope of myelin basic protein, the scope of claim 17 encompasses an isolated fusion molecule comprising a first polypeptide-sequence comprising a native human IgG heavy chain constant region capable of specific binding to a native IgG inhibitory receptor, wherein said IgG heavy chain constant region sequence is the sequence of SEQ ID NO: 2, directly functionally connected to a second polypeptide autoantigen sequence comprising at least 90% sequence identity to,. a portion of the amino acid sequence of myelin basic protein (MBP) and capable of specific binding to an IgE class immunoglobulin specific for MBP.

The scope of claim 21 encompasses an isolated fusion molecule comprising a first polypeptide sequence comprising a native human IgG heavy chain constant region capable of specific binding to a native IgG inhibitory receptor, wherein said first polypeptide sequence comprises an amino acid sequence having at least 98% identity to the amino acid sequence of SEQ ID NO: 3, directly functionally connected to a second polypeptide autoantigen sequence comprising at least 90% sequence identity to a portion of the amino acid sequence of myelin basic protein (MBP) and capable of specific binding to an IgE class immunoglobulin specific for MBP.

With respect to the argument that the specification discloses full-length as well as portion of myelin basic protein of SEQ ID NO: 13, it is noted that SEQ ID NO: 13 is a T cell epitope of myelin basic protein (MBP). The specification does not teach the structure of any portion of myelin basic protein (MBP) that binds to IgE antibody, presumably autoantibody of IgE isotype. However, Barsoum et al (Med Microbiol Immunol 163: 227-232, 1977; PTO 892) teach

circulating IgE (autoantibody to myelin basic protein) is not found in patient with multiple sclerosis. This is consistent with those of other, who used more sensitive methods (see page 230, in particular). As such, it is unclear to one of ordinary skill in the art such fusion molecule could treat multiple sclerosis by crosslinking the native IgG inhibitory receptor and IgE class receptors such as FcεRI and FcεRII without additional guidance and working examples.

The specification does not teach how to make and use any isolated fusion protein mentioned above wherein the second polypeptide autoantigen sequence comprising at least 90% sequence identity to any portion of the amino acid sequence of any myelin basic protein (MBP) and capable of specific binding to an IgE class immunoglobulin specific for MBP. There is a lack of specific guidance as to the structure, i.e., amino sequence as to the "portion" of the amino acid sequence of any myelin basic protein (MBP) the binds to IgE class of immunoglobulin has not been disclosed. Because the IgE epitope of MBP (portion of MBP) to which the IgE antibody binds has not been disclosed, the specification as filed does not enable one of skilled in the art as how to make such autoantigen MBP sequence comprising at least 90% identity to such portion, and then fused such portion of MBP to a first polypeptide consisting of the amino acid sequence of SEQ ID NO: 2 or an amino acid sequence having at least 98% sequence identity to the amino acid sequence of SEQ ID NO: 3.

With respect to a native human IgG heavy chain constant region comprises an amino acid sequence having at least 98% identiy to the amino acid sequence of SEQ ID NO: 3 in the claimed fusion molecule, there is no guidance as to which amino acid within SEQ ID NO: 3 to be substitute, deleted or added such that it maintains binding to native IgG inhibitory receptor.

Tao et al, of record, teach even a single amino acid substitution in the CH2 domain of human IgGs from Asn-297 to His for IgG1 or Lys for IgG3 affected the structure and functional properties of the human IgGs. The resulting aglycosylated IgGs lose the ability to activate complement (C) (see page 2598, Fig 2, page 2599, col. 2, third paragraph, in particular), lost the ability to bind FcγRI (see page 2600, col. 1, first paragraph, in particular) and shortening the serum half-life of the aglycosylated IgG3 (see abstract, in particular).

Further, there are no *in vivo* working examples of treating multiple sclerosis using such fusion protein. A pharmaceutical composition in the absence of in vivo working examples are unpredictable for the following reasons: (1) the protein may be inactivated before producing an effect, i.e. such as proteolytic degradation, immunological inactivation or due to an inherently short half-life of the protein; (2) the protein may not reach the target area because, i.e. the protein

may not be able to cross the mucosa or the protein may be adsorbed by fluids, cells and tissues where the protein has no effect; and (3) other functional properties, known or unknown, may make the protein unsuitable for in vivo therapeutic use, i.e. such as adverse side effects prohibitive to the use of such treatment. See page 1338, footnote 7 of Ex parte Aggarwal, 23 USPQ2d 1334 (PTO Bd. Pat App. & Inter. 1992).

The specification exemplify fusion molecule comprising human IgG Fc fused to myelin basic protein or the specific epitope of myelin basic protein consisting of the amino acid sequence of SEQ ID NO: 13, see example 2. However, the specification does not teach how to use such fusion molecule for treating autoimmune disease such as multiple sclerosis. Lack of a working example, however, is a factor to be considered, especially in a case involving an unpredictable art.

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require additional treatment such as induction of tolerance using whole tissue extracts, mixtures of encephalitogenic proteins/peptides or costimulatory blockade (see page 677, col. 2, in particular).

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For these reasons, it would require undue experimentation of one skilled in the art to practice the claimed invention. See page 1338, footnote 7 of Ex parte Aggarwal, 23 USPQ2d 1334 (PTO Bd. Pat App. & Inter. 1992).

7. No claim is allowed.

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, THIS ACTION IS MADE FINAL. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Phuong Huynh, Ph.D. whose telephone number is (571) 272-0846. The examiner can normally be reached Monday through Thursday from 9:00 a.m. to 6:30 p.m. and alternate Friday from 9: 00 a.m. to 5:30 p.m. A message may be left on the examiner's voice mail service. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eileen B O'Hara can be reached on (571) 272-0878. The IFW official Fax number is (571) 273-8300.

10. Any information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Phuong Huynh/
Primary Examiner, Art Unit 1644
March 28, 2008